MATH F113X: Introduction to Scheduling

lecture notes

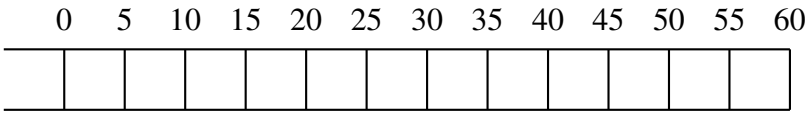
Goal Learn about the following terminology: schedule, digraph, processors, finishing time, optimal finishing time, optimal schedule, idle time, critical path, critical time.

1. **Motivating Example** Fixing a Flat Bike Tire

label	task	time	dependence
A	buy a replacement tube patch kit	20 minutes	
B	find tools	5 minutes	
C	remove tire and tube	10 minutes	
D	replace tire and new tube	10 minutes	
E	repair old tube	10 minutes	

(a) Schedule with one processor

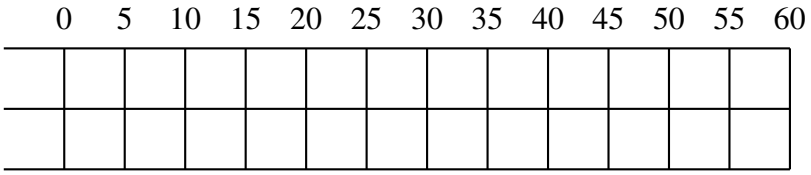
total time: _____



(b) Schedule with two processors

total time: _____

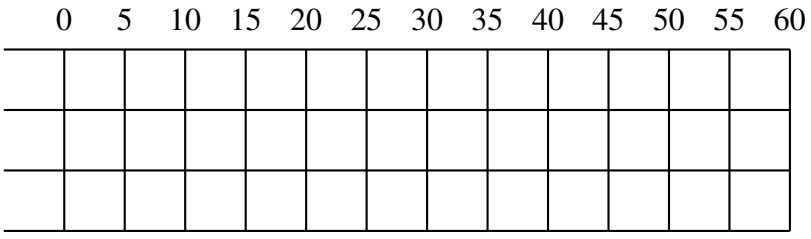
time	
done	
ready	



(c) Schedule with three processors

total time: _____

time	
done	
ready	



2. Terminology

   (a) **schedule**

   (b) **digraph**

   (c) **processors**

   (d) **finishing time**

   (e) **optimal finishing time and optimal schedule**

   (f) **idle time**

   (g) **critical path**

   (h) **critical time**

3. **General Example**: Create a digraph. Make a valid schedule with TWO processors. Determine values of finishing time, idle time and critical time.

label/task	time	dependence
A	2	
B	1	
C	2	
D	3	A
E	6	A, B
F	8	B, C
G	5	E, F

time	
done	
ready	

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20